

I claim:

1. A colored polymer mouthpiece for a brass wind musical instrument comprising a shank, and a cup integral with the shank, the shank and cup defining an axially extending aperture configured to conduct vibrating air, the mouthpiece being made solely from a selected polymer material and a colorant material of a selected color that imparts the selected color to the polymer material,  
so that the entire mouthpiece exhibits the selected color.

2. The colored polymer mouthpiece of claim 1 wherein the polymer material is polycarbonate.

3. The colored polymer mouthpiece of claim 2 wherein the polycarbonate material and the colorant material cooperate to render the mouthpiece opaque.

4. The colored polymer mouthpiece of claim 2 wherein the polycarbonate material and the colorant material cooperate to render the mouthpiece transparent.

5. The colored polymer mouthpiece of claim 1 wherein the mouthpiece is manufactured by an injection molding process.

6. The colored polymer mouthpiece of claim 1 wherein the mouthpiece is manufactured by machining a bar of polymer material.

7. In combination:

a. a brass wind musical instrument made of a selected metallic material and having a first color; and

b. a mouthpiece removably insertable into the instrument and made solely from a polycarbonate material and a selected colorant material,  
so that the mouthpiece exhibits the color of the selected colorant material.

8. The combination of claim 7 wherein the first color is brass, gold, or silver color, and wherein the polycarbonate material and the selected colorant material cooperate to render the mouthpiece a color that is neither brass, gold, nor silver color,  
so that the mouthpiece color contrasts with the first color.

9. The combination of claim 8 wherein the polycarbonate material and the colorant material cooperate to render the mouthpiece opaque.

10. The combination of claim 8 wherein the polycarbonate material and the colorant material cooperate to render the mouthpiece transparent.

11. The combination of claim 7 wherein the first color is brass, gold, or silver color, and wherein the polycarbonate material and the selected colorant material cooperate to render the mouthpiece a color that is gold or silver color,  
so that the mouthpiece color blends in with the first color.

12. A mouthpiece for a brass wind musical instrument comprising a wall having an integral cup and shank defined by an outer periphery and an aperture of predetermined size and shape and extending along a longitudinal axis between a shank end and a rim face, the mouthpiece exhibiting a selected color and being manufactured by mixing a selected polymer material and a colorant of the selected color together, heating the mixed polymer material and colorant to a liquid state, injecting the liquid into molds having a cavity shaped as a mouthpiece for a brass wind musical instrument, cooling the liquid to a solid state, and removing the mouthpiece from the molds.

13. The mouthpiece of claim 12 wherein the mouthpiece is opaque.

14. The mouthpiece of claim 12 wherein the mouthpiece is transparent.

15. The mouthpiece of claim 12 wherein the selected polymer material is polycarbonate.

16. The mouthpiece of claim 12 wherein the mouthpiece is further manufactured by a secondary machining process subsequent to removing the mouthpiece from the molds.

17. A method of manufacturing a complete mouthpiece for a brass wind musical instrument comprising the steps of:

- a. providing a quantity of a selected polymer;
- b. mixing a quantity of a colorant having a first color into the polymer material;
- c. heating the mixed polymer and colorant to a liquid state;
- d. injecting the mixed liquid polymer and colorant into molds having a cavity of substantially the size and shape of a mouthpiece;
- e. cooling the mixed liquid polymer and colorant to a solid state; and
- f. removing the mouthpiece from the molds and thereby obtaining a polymer mouthpiece that exhibits the first color.

18. The method of claim 17 wherein the step of providing a quantity of a selected polymer comprises the step of providing a quantity of a polycarbonate material.

19. The method of claim 17 wherein the step of mixing a quantity of a colorant comprises the step of mixing a quantity of a colorant having a first color that is not brass, gold, or silver.

20. The method of claim 19 comprising the further steps of:

- a. providing a brass wind musical instrument having a brass, gold, or silver color; and
- b. inserting the mouthpiece into the musical instrument and thereby

presenting contrasting colors between the musical instrument and the mouthpiece.

21. The method of claim 17 comprising the further step of removing flashings and gate blushes from the mouthpiece subsequent to removing the mouthpiece from the molds.

5        22. The method of claim 17 wherein the step of mixing a quantity of a colorant into the polymer material comprises the step of mixing a quantity of a colorant into the polymer material and obtaining a clear mouthpiece that exhibits the first color.

10       23. The method of claim 17 wherein the step of mixing a quantity of a colorant into the polymer material comprises the step of mixing a quantity of a colorant into the polymer material and obtaining an opaque mouthpiece that exhibits the first color.

24. The method of claim 17 comprising the further step of performing a secondary machining process on the mouthpiece subsequent to removing the mouthpiece from the molds.

15       25. The method of claim 24 wherein the step of performing a secondary machining process comprises the step of polishing or buffing the mouthpiece.

26. The method of claim 17 wherein the step of mixing a quantity of a colorant comprises the step of mixing a quantity of a colorant having a first color that is gold or silver.

27. The method of claim 26 comprising the further steps of:

20        a. providing a brass wind musical instrument having a brass, gold, or silver color; and

      b. inserting the mouthpiece into the musical instrument,  
      so that the mouthpiece color blends into the musical instrument color.

25       28. A polymer musical instrument mouthpiece bounded by an outer periphery and an aperture that extend between a rim face and a shank end and each having a predetermined size and shape, the mouthpiece being fabricated by molding a mixture of polymer material and a selected colorant material into a molded mouthpiece having the outer periphery and aperture of substantially the respective predetermined sizes and shapes and with imperfections on at least one of the outer periphery or the aperture, and  
30       by performing a secondary machining process on the molded mouthpiece to remove the imperfections.

29. The polymer musical instrument mouthpiece of claim 28 wherein the polymer material and the colorant material cooperate to render the mouthpiece opaque.

35       30. The polymer musical instrument mouthpiece of claim 28 wherein the polymer material and the colorant material cooperate to render the mouthpiece transparent.

31. A polymer musical instrument mouthpiece bounded by a first outer periphery and a first aperture that extend between a rim face and a shank end and that each have a first predetermined size and shape, the mouthpiece being fabricated by molding a mixture of polymer material and a selected colorant material into a blank having a second outer periphery and a second aperture each having a second predetermined size and shape, and by performing a primary machining operation on the blank second outer periphery and second aperture to produce the first outer periphery and the first aperture each of the first predetermined size and shape.

32. The polymer musical instrument mouthpiece of claim 31 wherein the polymer material and the colorant material cooperate to render the mouthpiece opaque.

33. The polymer musical instrument mouthpiece of claim 31 wherein the polymer material and the colorant material cooperate to render the mouthpiece transparent.

34. The polymer musical instrument mouthpiece of claim 31 wherein the mouthpiece is fabricated by machining the blank with single point tooling to have the outer periphery and aperture of the predetermined size and shape.

35. A method of making a complete mouthpiece for a brass wind musical instrument having a predetermined size and shape comprising the steps of:

- a. mixing a first quantity of a selected polymer material with a second quantity of a selected colorant material;
- b. heating the mixture of the selected polymer and colorant materials to a liquid state;
- c. injecting the liquid mixture into molds;
- d. cooling the mixture into a solid mouthpiece;
- e. ejecting the mouthpiece from the molds; and
- f. performing a machining operation on the mouthpiece.

36. The method of claim 35 wherein:

- a. the step of cooling the mixture comprises the step of cooling the mixture into a solid mouthpiece having substantially the predetermined size and shape but with flashings and gate blushes; and
- b. the step of performing a machining operation on the mouthpiece comprises the step of performing a secondary machining process on the mouthpiece to remove the flashings and gate blushes.

37. The method of claim 35 wherein:

a. the step of cooling the mixture comprises the step of cooling the mixture into a blank; and

b. the step of performing a machining operation on the mouthpiece comprises the step of performing a primary machining operation on the blank to machine the blank into a mouthpiece having the predetermined size and shape

38. A mouthpiece for a brass wind musical instrument and exhibiting a selected color, the mouthpiece comprising a cup having a rim face, and a shank integral with the cup and having a shank end, the shank and cup defining a longitudinal axis and being bounded by an outer periphery and an aperture of respective selected sizes and shapes, the mouthpiece being manufactured by mixing a polycarbonate material and a colorant of the selected color together, heating the mixed polycarbonate material and colorant to a liquid state, injecting the liquid into molds having a cavity and core shaped as a mouthpiece for a brass wind musical instrument, cooling the liquid to a solid state, removing the mouthpiece from the molds, and performing a secondary machining process on the mouthpiece.

39. The mouthpiece of claim 38 wherein the mouthpiece is opaque.

40. The mouthpiece of claim 36 wherein the mouthpiece is transparent.

41. A mouthpiece for a brass wind musical instrument comprising a wall having an integral cup and shank defining a longitudinal axis and bounded by an outer periphery and an aperture of predetermined size and shape and extending between a shank end and a rim face, the mouthpiece exhibiting a selected color and being manufactured solely from a selected polymer material by an injection molding process.

42. The mouthpiece of claim 41 wherein the mouthpiece is opaque.

43. The mouthpiece of claim 41 wherein the mouthpiece is transparent.

44. The mouthpiece of claim 41 wherein the selected polymer material is polycarbonate.

45. The mouthpiece of claim 41 wherein the mouthpiece is further manufactured by a secondary machining process subsequent to the injection molding process.

46. A method of manufacturing a mouthpiece for a brass wind musical instrument comprising the steps of:

a. providing a selected mouthpiece made from a metal material;

b. performing computer coordinate measurements on the metal mouthpiece to quantitatively determine the size and shape thereof;

c. molding a mixture of a polymer material and a selected colorant into a

blank;

d. performing a primary machining operation on the blank and producing a mouthpiece of the same shape and size from the blank as the selected metal mouthpiece,

5 so that the mouthpiece machined from the polymer blank is a custom made mouthpiece that is identical in shape and size to the selected metal mouthpiece.

47. The method claim 46 wherein the step of molding a mixture of a polymer material comprises the step of molding a mixture of polycarbonate material with the selected colorant.

10 48. The method claim 46 wherein the step of molding a mixture of a polymer material and a selected colorant into a blank comprises the step of molding a colorant that is neither brass, gold, nor silver into the blank.

49. The method claim 48 comprising the further steps of:

15 a. providing a brass wind musical instrument having a brass, gold, or silver color; and

b. inserting the mouthpiece into the musical instrument and thereby presenting contrasting colors between the musical instrument and the mouthpiece.

50. The method claim 46 wherein the step of molding a mixture of a polymer material and a selected colorant into a blank comprises the step of molding a mixture of  
20 a polymer material and a selected colorant into a blank and obtaining a clear mouthpiece that exhibits the selected color.

51. The method claim 46 wherein the step of molding a mixture of a polymer material and a selected colorant into a blank comprises the step of molding a mixture of a polymer material and a selected colorant into a blank and obtaining an opaque  
25 mouthpiece that exhibits the selected color.

52. The method claim 46 wherein the step of molding a mixture of a polymer material and a selected colorant into a blank comprises the step of molding a colorant that is gold or silver into the blank.

53. The method claim 52 comprising the further steps of:

30 a. providing a brass wind musical instrument having a brass, gold, or silver color; and

b. inserting the mouthpiece into the musical instrument,  
so that the mouthpiece color blends into the musical instrument color.

54. A mouthpiece for a brass wind musical instrument comprising a wall having  
35 an integral cup and shank defining a longitudinal axis and bounded by an outer

periphery and an aperture of predetermined size and shape and extending between a shank end and a rim face, the mouthpiece exhibiting a selected color and being manufactured by machining a bar of a selected polymer material.

5            55. The mouthpiece of claim 54 wherein the mouthpiece is opaque.

56. The mouthpiece of claim 54 wherein the mouthpiece is transparent.

10           57. The mouthpiece of claim 54 wherein the selected polymer material is polycarbonate.

58. A method of manufacturing a mouthpiece for a brass wind musical instrument comprising the steps of:

- 15           a. providing a bar of a selected polymer material; and  
             b. machining the bar into a brass wind musical instrument mouthpiece having a predetermined size and shape.

59. The method of claim 58 wherein the step of providing a bar comprises the step of providing a bar of a polycarbonate material.

20           60. The method of claim 58 wherein the step of providing a bar comprises the step of providing a bar of a clear polymer material.

25           61. The method of claim 58 wherein the step of providing a bar comprises the step of providing a bar of an opaque polymer material.

62. The method of claim 58 wherein:

- 30           a. the step of providing a bar comprises the further steps of:  
             i. providing a selected mouthpiece made from a metal material; and  
             ii. performing computer coordinate measurements on the metal mouthpiece to quantitatively determine the size and shape thereof; and  
             b. the step of machining the bar comprises the steps machining the bar into a brass wind musical instrument mouthpiece having substantially the same size and shape as the metal mouthpiece.